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THE PORT OF PARIS

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The Seine has been associated with the life and fortunes of Paris during the entire recorded history of the city. The river not only served as a defensive barrier to the new and growing town, surrounding the island on which it was situated, but early fostered in its inhabitants an instinct for traffic and commerce by water.

Long before the Roman period a stream of commerce poured through the valley of the Seine, coming up from the Mediterranean through the Rhone Valley and ending on the shores of Great Britain, where, as everyone knows, the ancient world obtained the greater part of its tin. During the first century of our era there existed in Paris a wealthy corporation of boatmen, one *Nautae Parisiaci*, who occupied themselves exclusively with shipping on the Seine. With the decline of the Roman Empire the Seine lost its prestige as an international trade route and as such disappeared from Continental history for several hundred years. Nevertheless, as Paris grew in importance the river contributed materially to its development. The Seine was of such consequence to the city that as early as the twelfth century the "water merchants" formed one of the richest corporations of Paris with special privileges granted them by the kings of France. By the middle of the fourteenth century this corporation was at the head of the municipal administration; its arms and motto, "Fluctuat nec mergitur," had been adopted by the city, and the corporation's chief had become the chief civil official of the municipality.

For hundreds of years it was the Seine that fed Paris. Food supplies and construction materials came by water. In the seventeenth and eighteenth centuries, after the building of the great royal roads, the rôle the river played diminished somewhat in importance, but it remained preponderant nevertheless, and the most animated marts of trade and barter were always those on the water front. At the beginning of the nineteenth century the railroads began to make serious inroads on the traffic, many foodstuffs came by rail, the markets were moved from the Seine to quarters nearer the centers of the city and more accessible to the consumers.

In spite of these changes the Seine traffic continued to be an important factor in the city's economic development. Paris, steadily enlarging, outgrew its walls, overran its suburbs, invaded lands once on its very outskirts, and became one of the great urban agglomerations of the world. The growth of the port of Paris corresponds with the growth of the city; it is now the port for a region of 4,000,000 inhabitants; its traffic (15,228,085 metric tons) surpassed in 1913 that of Marseilles (8,938,652 metric tons), the greatest maritime port of France.[1] These figures are based on the traffic within the confines of the Department of the Seine alone. If one considers that Greater Paris really includes many districts at some distance from, but still under the influence of and in direct contact with, the metropolis—in other words it extends upstream as far as Corbeil (31 kilometers) and downstream as far as Bezons (32 kilometers)—the sum of the volume of traffic rises to the enormous total of 27,000,000 tons.

Subdivisions of the Port of Paris

Most well-informed people are aware of the importance of the port of Paris, but many of them would be at a loss if asked to define its exact boundaries. Paris has no distinct harbor district as other ports have, rather there are many harbors in many districts scattered along the course of the river and its canals. The river traffic is not concentrated; there is no one dominant group of docks, wharves, warehouses, etc.; on the contrary the traffic is widely dispersed along the shores. It is essential, therefore, to consider what may be called the geographical subdivisions of the port of Paris; and for a clear understanding of these one must bear in mind that the port began with the city and developed continuously with it.

There are three distinct sections or districts which have gradually become merged into one system as the city has grown and expanded. These three districts are: (1) the Seine within the city limits, (2) the Seine in the suburbs, (3) the canals of the city.

THE SEINE WITHIN THE CITY

The intramural course of the Seine is 12.3 kilometers long, and a considerable portion of both banks is used for the loading and unloading of freight cargoes. There are fewer wharves and slips in the center of the city, and they are small and narrow. Through the quarters of Notre Dame, the Palais de Justice, the Louvre, and the Tuileries, the river flows tranquilly between stone quays surrounded and topped by tall buildings and monuments. But upstream and downstream such structures no longer crowd to the water's edge; there is more room for factories, for trade, and consequently for the river traffic. So it happens that commerce on the waterway tends to the outlying quarters, particularly to those upstream. More than 14 kilometers of the banks have been devoted to wharfage. On the right bank are the quays of Bercy, La Râpée, Henri IV, Célestins, Hôtel de Ville, Louvre et St. Nicolas, Tuileries et Concorde, Champs Elysées, Conférence, Debilly, Passy, and Auteuil. On the left are Tolbiac, Gare, Austerlitz, St. Bernard, Tournelle, Montebello, Orfèvres, Saints-Pères, Solferino et Orsay, Invalides, Gros-Caillou, La Bourdonnais, Suffren, Grenelle, and Javel. It is a constant source of amazement to those who go to see the Seine at Paris to find that at almost every group of piers building materials are being unloaded—sand, gravel, stone, and brick. This is because the city, constantly growing, spreading out, changing, has to have a landing place in every separate quarter for the heavy building materials that are constantly required. In addition to this, however, each group of wharves belonging to each quarter of the city specializes in some particular article of commerce. Bercy handles wine; La Râpée coal, wood, and paper pulp; Louvre et St. Nicolas is given over to merchandise brought from England by small coasting vessels; La Gare to casks and petrol; Austerlitz receives a varied assortment of goods in its stores and warehouses—precious woods, boxes, castings, marbles, machinery, grains, preserves, sugar, and wheat; St. Bernard, like Bercy, handles wine; Javel, coal and refuse. These intramural docks ranged in a series along the city's banks disposed in 1913 of more than one-half of the entire amount of merchandise loaded and unloaded in the entire system of Paris ports that year, more than 6,700,000 tons.

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[1] In 1918 the traffic of the port of Paris reached a volume of 12,784,343 metric tons.

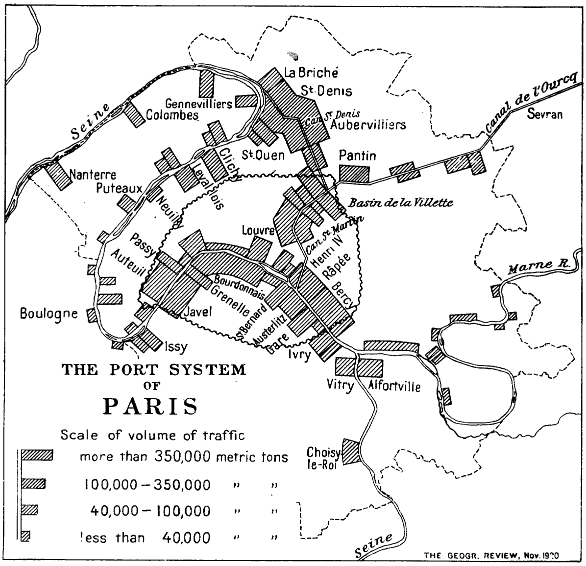

FIG. 1—Sketch map representing the volume of water-borne traffic at the subdivisions of the port of Paris in the Department of the Seine. Paris has no special harbor district: traffic is dispersed along the banks of the Seine both within the city and in the suburbs and along the tributary canals. Scale of map approximately 1:3,900,000.

THE CANALS OF PARIS

During the eighteenth century Paris grew towards the northeast, beyond the *faubourgs* of St. Denis, of St. Martin, and of the Temple. Groups of houses sprang up in the direction of La Villette, between the heights of Montmartre and Belleville. These newer parts of the city lay away from the water front. To keep them in communication with the river it was decided to build an artificial waterway, and a canal system was laid out comprising the St. Denis Canal (6,750 meters in length), which was completed in 1821, and the St. Martin Canal (3,200 meters in length), completed in 1825. A third canal, that of the Ourcq, planned primarily to furnish water to the other two, was opened in 1826 and made into a navigable channel. Thus a complete circuit was established, from the lower Seine at La Briche near St. Denis, to the upper Seine in Paris at the Arsenal basin, connecting with the waters of the Ourcq Canal at the Villette basin. The system comprising these three canals is called the Municipal Port, because it belongs to the City of Paris. These canals go through the busy industrial sections, among the factories and workshops. The beautiful views along the Seine find no rivals here; here are no monuments and gardens, no delightful walks shaded by ancient trees; here are only prosaic and utilitarian objects, sheds and warehouses, mills, cranes, coal yards, wood yards, piles of stones and of sacking. The Villette basin at the junction of the canals carries a traffic of more than 1,000,000 tons. Districts of wharves and piers succeed each other along these waters; on the Ourcq Canal lie Pantin, Bobigny, Noisy-le-Sec, Bondy, Pavillons; on the St. Martin Canal Pantin, Combat, Récollets, Marais, Arsenal; on the St. Denis Canal Flandre, Aubervilliers, Stains, St. Denis. In 1913 these waters carried over 3,000,000 tons of freight, principally coal destined for the use of the mills and factories in these quarters and in regions contiguous to them.

THE SEINE IN THE SUBURBS

As the Parisian population spread out far beyond the city's walls the port of Paris extended itself also, above and below the town. Many factories driven from the city proper by the increasing value of the land, moved into the suburbs, as close as might be to the Seine where they could receive their raw materials and coal by water. Thus the third distinct division of the port developed: upstream, St. Maurice, Joinville, Choisy-le-Roi, Alfortville, Vitry, Ivry; below, Billancourt, Boulogne, Issy, Sèvres, St. Cloud, Suresnes, Puteaux, Neuilly, Courbevoie, Levallois, Clichy, Asnières, St. Ouen, St. Denis, La Briche, Gennevilliers, Colombes, Nanterre. These landings, which are principally used for industrial supplies, have a volume of traffic of some 3,000,000 tons.

PROJECTED IMPROVEMENTS

Plans are being made for further extensions of the port. It is probable that in the near future the Parisian waterways system will have added to it a great canal from the Marne, designs for which have been almost completed by the engineers in charge. The scheme is an attempt to avoid the troubles incident to the Seine floods.

The canal is to start from the Marne, near Annet north of Lagny, is to pass Claye, Sevran, Aulnay-sous-Bois, and to enter the Seine at St. Denis after a course of 34 kilometers. It will have a flow of 500 cubic meters a second from the waters of the Marne and will thus lower the flood level of the waters in Paris by 1.5 meters for a great inundation such as that of 1910. It will not only lower the high-water levels of the great floods but will entirely do away with the effects of the smaller freshets which disturb navigation yearly. And above all it will open up to the north of Paris a direct route by which vessels may avoid the tortuous and difficult journey through the city and which will enable the Lorraine ores and the coal from the Sarre region to be shipped directly to the port of Gennevilliers below Paris. This port is another projected improvement which will add greatly to the volume of river traffic. It is to be excavated in the alluvial deposits of the Seine westward of Paris, and is to be brought into relation with the network of railways comprising the Western and Northern railway systems. There are to be two basins, one for trade and commerce, the other for the factories which will be built there. It will be the great downstream harbor, the port for the maritime traffic that will come up the Seine when its channels are deepened. Seagoing and inland-waterway vessels will transship cargoes there, as they now do at Rouen, and there will be in addition a great volume of freight from eastern France, coming down by river boats to be transferred there to ocean-going ships.

To sum up, the port of Paris is divided into three distinct parts: (1) the river within the city itself, carrying about half the traffic; (2) the river in its course through the suburbs, carrying about a quarter of the traffic; (3) the canals, which carry about a quarter of the traffic. The port extends along the Seine for some 53 kilometers, from Choisy-le-Roi to Nanterre, and for 14 kilometers more through the canals of the town, 67 kilometers of waterways in all, on which were carried, in 1913, 15, 288,085 tons of freight.

The Seine As a Waterway

The characteristics of the Seine as a waterway are clearly reflected in the long history of navigation on the river from the earliest days to the remarkable development of an inland merchant marine during our own era. Of all the rivers of France the Seine is the one whose system of waters is best adapted for constant use as a means of communication. The topography of the Seine valley is such that it lends itself better than any other valley in France to connection with other basins and to the extension of its waterways. Of all the regions of France the district about Paris is the one where man has most employed his art and skill in altering and improving navigable streams.

THE CHARACTER OF THE SEINE

The Seine is notable among French rivers for its tranquil, steady flow. While other rivers pour down from mountain heights, the Seine, rising at an altitude of only 470 meters, runs into a shallow basin of but slight inclination. At Paris, 180 kilometers from the sea, the Seine is but 25 meters above sea level, the grade to the ocean thus being only 7 centimeters per kilometer; whereas on the Loire between Ponts-de-Cé and Nantes the grade is 16 centimeters per kilometer and on the Rhone between Lyons and the sea, 45 centimeters. Consequently the waters of the Seine flow quietly, without turbulence; and even in times of flood they rise slowly, not suddenly. The rainfall too is distributed with comparative regularity throughout the seasons of the year. Paris does not suffer from seasons of drought as do the Mediterranean shores and, on the other hand, has few torrential downpours to score the earth and flood the streams. Three-quarters of all the land in the Seine basin—59,210 out of 78,650 square kilometers—is permeable soil, hence the greater part of the rainfall filters through and feeds the springs which in turn keep the rivers supplied with water during the summer season. The Seine has less reason than the Loire to fear summer drought.

The Seine deposits little alluvium, there are no sand bars or gravel banks impeding the course of the stream as there are along the Loire, and its channel is a fixed one, not varying with every freshet. Thus, given a slight incline, a regular flow throughout the year, and a clear channel, the Seine was naturally from earliest times a superlatively safe and useful watercourse, an invaluable artery of commerce and intercourse for the entire region. This very fact makes the more serious the exceptional accidents—floods, drought, or frost—that from time to time interfere with navigation. In more recent years engineers have devised various means for controlling the waters. Dams have been erected between Paris and Rouen, the level of the low water has been raised, there is no longer danger from a possible drought. But attempts to regulate the high water from upstream have not been so successful, though it is hoped that the floods too will soon be under control.

Connection With Other Basins

The commercial value of the Seine is greatly enhanced by the fact that it can so readily be connected with streams in neighboring basins. The bordering elevations are slight, it is easy to cross to the Loire, to the country around the Meuse, the Moselle, the Rhine, and the Scheldt. A complicated system of communications has gradually developed, radiating from Paris. It was France that built the first canals in all Europe to cross divides, connecting basin with basin. The earliest ones were planned to secure provisions for the city. The first canal system joined the Seine and the Loire; the Briare Canal was opened in 1642, the Orléans Canal in 1692, the Loing Canal in 1721. Thus as early as the seventeenth century Paris was in direct communication with the districts about the Loire, rich in grain and wine. But it was not until 1822 that the canal that paralleled the upper Loire and was to bring Paris coal from St. Étienne was begun, and this was not completed until 1856.

A second system of canals united Paris and the northern country. The St. Quentin Canal, 1724–1810; the canal paralleling the Oise, 1831; the canal from the Sambre to the Oise, 1839; the Ardennes Canal, 1835. Of all these engineering developments the finest and most useful was the St. Quentin Canal, between the Somme and the Scheldt, which was designed to connect the coal fields around Valenciennes with Paris. In constructing this canal it was found necessary to drive two tunnels through chalk, one 5,670 meters long at Riqueval, one 1,098 meters long at Tronquoy. For a number of years and as late as 1831 the greatest difficulty was experienced in making the bed of the canal water-tight, for the waters drained out constantly through the permeable rock. But when the work was finally

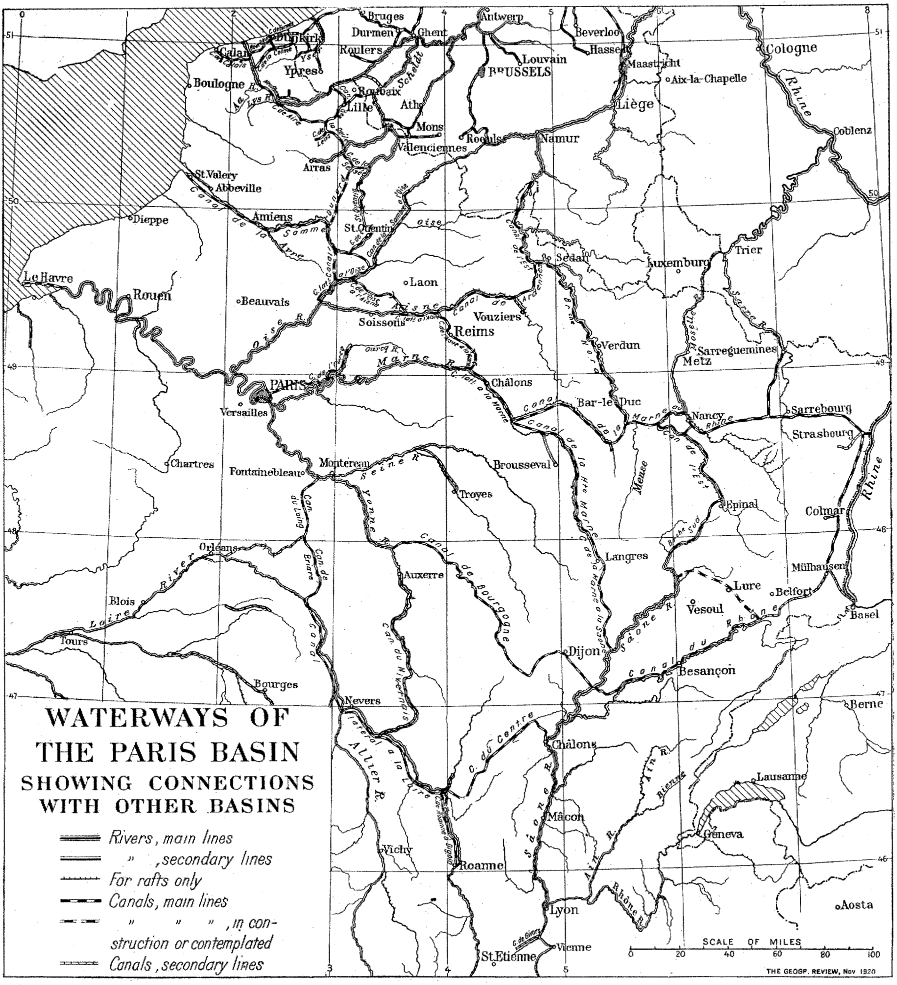

FIG. 2—Map showing the waterways of the Paris Basin and its connection with adjoining basins. Scale 1:5,000,000.

completed it was a fine stretch of waterway, admirable for its time, through which enormous quantities of coal could be brought down to Paris and all its industrial outskirts. These shipments of fuel have now grown so great that the St. Quentin Canal is shortly to be duplicated by the Northern Canal now in the course of construction.

A third system of canals connected the Seine with the country to the eastward—the Bourgogne Canal (1832), between the Yonne and the Saône, and the Rhine-Marne Canal (1853). By means of these Paris was able to draw upon districts at a greater distance for its provisions of wine, wood, and building materials.

Improvement and Standardization of the Waterways

The capacities of the waterways that carry the shipping of Paris have been greatly increased by extensive engineering work on the rivers and canals. Everywhere natural conditions have given way to the needs of commerce, and man's efforts in this direction, accomplished at the expense of much labor, are not yet completed.

The adoption of the standard gage gave the railways their greatest advantage. A car could travel over the lines of any company from one end of the country to the other. The canals and rivers of France on the contrary were handicapped by the diversity of their dimensions. Built at different periods, according to the necessities of the time and the place, and with resulting variations in depth, locks, and general construction, the canals were totally inadequate to meet the needs of a growing volume of traffic stimulated by the rapid expansion of urban and industrial life. In 1879 the Freycinet laws were passed requiring certain uniform dimensions along navigable waterways—depth 2 meters; width of locks 5.2 meters; inside length of locks 38.5 meters; clearance under bridges 3.7 meters. These laws adapted French waters to the measure of the Flemish pinnaces of 300 tons' burden that brought coal to the Villette basin in Paris. These dimensions were adhered to in remodeling the principal canal systems, the St. Quentin and the Sambre-to-Oise Canals which connect Paris and the North; the Marne-Rhine Canal and the river Marne connecting eastward with Alsace and Lorraine; the upper Seine and the Bourgogne Canal connecting Paris to the southeast with Lyons; the Briare and the Loing Canals connecting with the districts to the southward which in turn are served by the Loire and the Central Canal. Paris was thus put in direct communication with the coal mines, with the industrial centers, and with the forest regions of France which lie beyond the Seine basin.

Connection With the Sea

But it was still necessary to connect Paris with the sea and to give her access to that universal highway. The Seine reaches the English Channel by Rouen and Havre, but this natural route did not meet modern needs.

The channel of the Seine varied greatly, deeps alternating with shallows impassable in times of low water. At the beginning of the nineteenth century it was quite usual to harness up from thirty to forty horses to drag the ships through the worst places (Bezons, Poses, Martot). In earlier days these inconveniences were tolerated, but they became unendurable when the necessity for a rapid and regular traffic began to develop. Toward the middle of the nineteenth century it was decided to build dams and locks in the shallow places so as to raise their levels. From 1832 to 1866 there were built seven locks between Paris and Rouen (Suresnes, Bezons, Andrésy, Meulan, La Garenne, Poses, Martot) giving eight reaches where vessels could be sure of an anchorage depth of 1.6 meters. These first improvements were soon outgrown and a second series begun. From 1879 to 1888 under the operation of the Freycinet laws two more locks were added, and the anchorage depth of the Seine waters was increased to 3.2 meters from Port-à-l'Anglais (4 kilometers above Paris) to Rouen, 250 kilometers in all. Lighters of 1,000 tons' burden could then pass up and down the Seine. To permit this traffic direct entry into Paris the waters of the St. Denis Canal and the Villette basin were also given a minimum depth of 3.2 meters. These improvements gave an astonishing impetus to traffic on the lower Seine; from 1881 to 1911 shipping on the river from Rouen to the confluence of the Oise increased from 933,600 tons to 3,777,600 tons. The time has now come, however, when further changes are imperative and

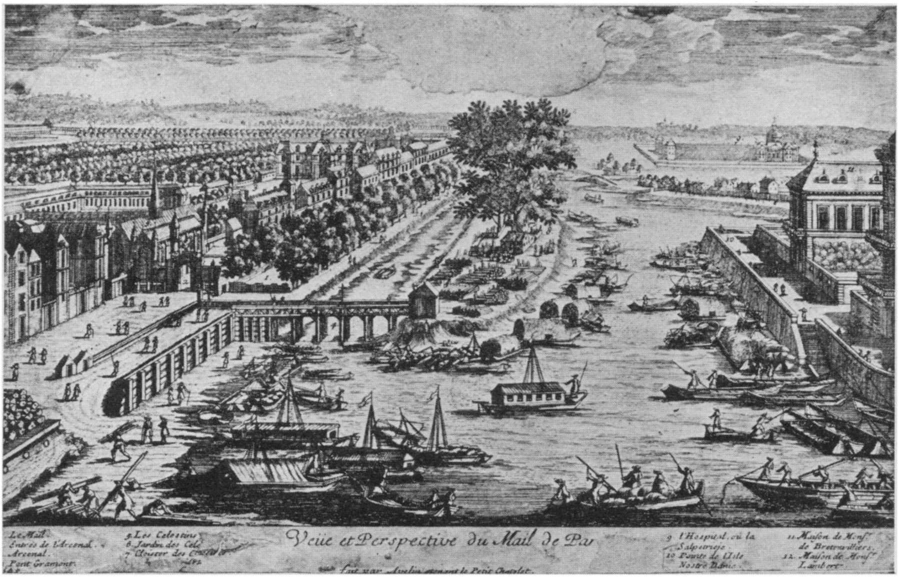
Veüe et Perspective du Mail de Par
Le Mail
Entrée de l'Arcenal
Arcenal
Pont Gramont
5 Les Celestins
6 Jardin des Cele
7 Cloister des
9 l'Hospital où la Salpetriere
10 Pointe de l'Isle Nostre Dame
11 Maison de Mons. de Bretonvilliers
12 Maison de Mons. Lambert

FIG. 3—The Seine at the beginning of the seventeenth century. View from an old engraving. Looking up stream: on the right Ile St. Louis; on the left the buildings of the Arsenal. The island in the center where cargoes of wood are being discharged is now attached to the mainland and is occupied by the quai Henri IV.

the establishment of direct relations between Paris and her oversea trade is necessary. This need has given rise to the various plans known to the public at large by the general title of the seaport-of-Paris projects.

Up to the present time the best known of these projects has been that of the engineer Bouquet de la Grye (1880). His scheme was to dredge the Seine to a depth of 6.2 meters, to have six reaches between Rouen and Paris, to build cut-offs across some parts of the winding stream, to straighten some of its curves, and to raise the bridges. This plan was abandoned as being too expensive. The floods of 1910, however, called the public's attention again to the work along the Seine, and with the idea of preventing future disastrous inundations in Paris and its environs the Commission proposed that the Seine channel should be deepened to 4.5 meters between Paris and Bougival. Immediately the question why this improvement should be limited to the neighborhood of Paris was raised. Why indeed not continue the excavation of the channel as far as Rouen? Paris has championed this idea in the face of hesitation and doubt on the part of the Ministry. The city realizes that river barges of 2,500 tons, seagoing barges, and even coasting vessels could come directly up the river, that all this traffic could be accommodated in the artificial harbor of Gennevilliers just below Paris, and that thus Paris would be brought into her desired contact with ocean navigation.

Port Facilities

Deepening the channel will not be the only problem. The banks of the river must be provided with suitable facilities for the reception and expedition of cargoes. These installations will require considerable planning. It is not as if this were a new land where every project could be put through without any other considerations. As in all old countries the past hampers men, and the city is not free to develop its port at will.

The great advantage of the port of Paris is that its ramifications extend throughout the very heart of the city and that it offers an unusual amount of wharfage for the accommodation of vessels. In its course through the city the Seine becomes in reality an artificial waterway entirely controlled by man. Islands have been connected with the shores, the banks raised and straightened, the bed of the stream narrowed. From one end of the city to the other the river flows between walls of masonry from which quays are built out, narrow in the center of the town, larger in the outlying quarters given over to manufacturing and trade. In early days the shores were almost all sloping, so that rafts and the little craft of those days could be dragged up the banks; these landings were called tow landings. Modern vessels cannot lie against such a sloping bank, and during the last twenty-five years landings that rise perpendicularly from the water level have been gradually substituted for the tow landings. Today merchandise is loaded and unloaded on twenty-nine modern wharves, about 10,756 meters long in all, with decks varying from ten to seventy meters, and on nine tow landings, 3,690 meters long in all. To these must be added the landing stages, some 5,917 meters long, used only for the unloading of lumber and firewood.

NEED OF MODERN INSTALLATIONS

It is obvious that the port of Paris does not lack wharfage room along the shores of its rambling river, but the commercial use of these waters is interfered with by the fact that there are thirty-three bridges, some of them very low and consequently very dangerous, on account of which navigation ceases at night. Then, too, there are all manner of floating bathhouses and washhouses encumbering the stream and hampering the movements of vessels. Above all there is not enough room between the wharves and the town for the necessary shops, warehouses, railways, and equipment. Very few great storage buildings are seen along the shores of Paris. The warehouses at the Villette basin, at Ivry, at the Arsenal basin, and at Austerlitz are the exceptions. The fact that there are so many points along the whole water front easily accessible for barges has apparently retarded the adoption of mechanical means of unloading. One may still see this work carried on in many places by hand, men unloading sand with shovels, carrying coal ashore in sacks on their backs, or lugging bags of cement. These scenes appear picturesque to the strolling onlooker but are ridiculous in the extreme from the point of view of modern commerce. There are only a few private landings on the Seine where suitable equipment has been installed, at Gennevilliers for the Suburban Gas Company, at Issy for the Electric Service Company, at Ivry for the Light and Power Company, and at Austerlitz. In the public landings used for general traffic the equipment is wretched, there are few cranes, and labor by hand is slow and costly. Another dis-

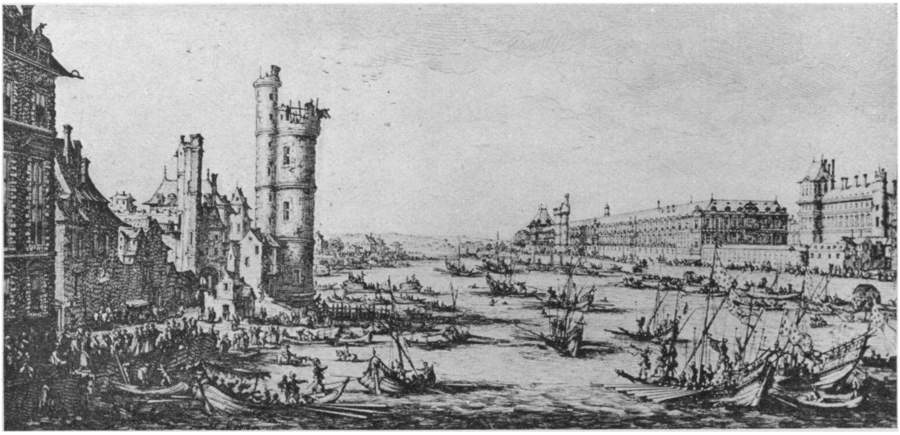

FIG. 4—Fête on the Seine about 1640 (after a print by Callot). Looking down stream: on the right the Old Louvre; on the left the famous Tour de Nesle.

advantage is that there is little direct connection between the wharves and the railway lines. These latter cannot be brought down to the water front because of the already enormous congestion of urban surface travel, street cars, omnibuses, carriages, automobiles, and pedestrians. On most of the docks along the Seine cargoes are discharged into horse-drawn drays or motor trucks. There are but few landings where the railroad runs to the river so that merchandise can be transferred directly from ship to car and vice versa. On the Eastern Railroad only Villeneuve-Triage above Paris and La Villette are in direct touch with the shipping; on the Paris-Lyons lines only Bercy, Charenton, and Villeneuve-St. George; on the Western Railroad there are Javel, St. Cloud, and Gennevilliers; on the Orléans railway the ports of St. Bernard, Ivry, and Austerlitz; on the Northern Railroad only St. Ouen. This is due, not alone to material difficulties, but to the systematic hostility of the railroads to any scheme for carrying freight by water.

The port of Paris also suffers from a malady common to all old countries, namely a conflict of authorities, growing out of the constant overlapping of administrative functions in the course of hundreds of years. Regulation of the port falls under three departments: the Department of Bridges and Highways, the Paris Municipality, and the Prefecture of Police. There is no single head, no co-ordination; there is consequently an infinite amount of neglect, indifference, and inadequate regulation. Every user of the public docks is free to bring materials there, to leave his barrows and carts, to pile up his merchandise, in a word to create as much confusion and disorder as he pleases. At Paris, as at London, Antwerp, and Mannheim, there should be a single authority which should have entire control of the use, upkeep, and general management of the port.

Such are the waterways of the port of Paris; let us now see to what uses they are put and what manner of commerce they carry.

The Traffic

Trade in the port of Paris, as the subdivision of the port within the very borders of the city indicates, is closely related to the economic necessities of the town. The port is not a center for foreign trade as are some other river ports of the world that are accessible to seagoing vessels, like Manâos in Brazil, Hankow in China, and Ghent in Belgium. It is not even a focal point for regional trade, the outlet for a large section of back country, as is Mannheim on the Rhine. It is essentially a port for the city of Paris alone; its activities are strictly local and urban. This limited rôle is oddly at variance with the position of Paris itself in the foreign trade of France.

The port, as a component part of the city, has grown with it. Since the beginning of the nineteenth century there has been a constant increase in the amount of incoming freight. In thousands of metric tons (tons of 1,000 kilograms), it was: 1,380 in 1823, 1,418 in 1830, 2,020 in 1840, 2,868 in

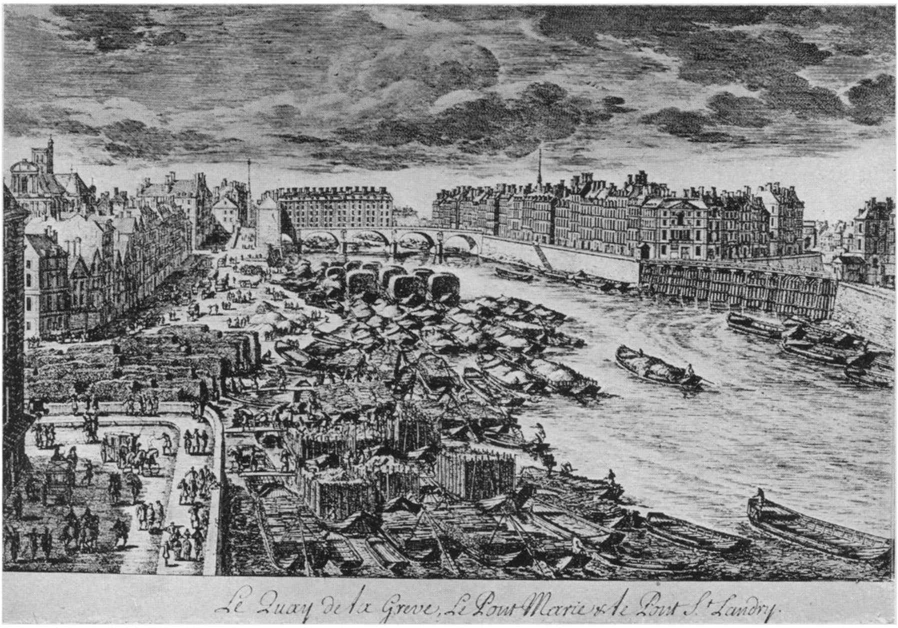
Le Quay de la Greve, Le Pont Marie et le Pont St Landry.

FIG. 5

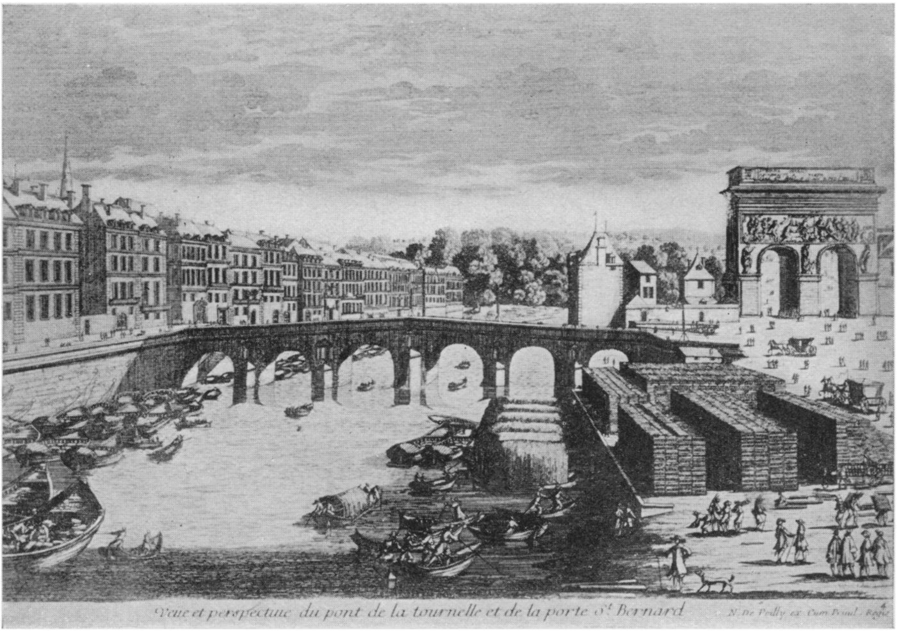
Veue et perspective du pont de la tournelle et de la porte St Bernard
N. De Poilly ex. Cum Privil. Regis

FIG. 6

FIG. 5—The Seine about 1670. View from an old engraving. Looking up stream: on the right Ile St. Louis; on the left the port of Grève, one of the most important ports of old Paris, now the site of the quai Hôtel de Ville.

FIG. 6—The Seine at the end of the seventeenth century. View from an old engraving. Looking up stream towards the pont de la Tournelle: on the right the double arch of St. Bernard, one of the gates of medieval Paris, now no longer standing.

1861, 3,675 in 1869, 4,469 in 1880, 7,567 in 1900, 8,205 in 1910, 11,709 in 1913.

When the improvements along the Seine, the tributary rivers, and the canals augmented the freight-carrying capacity of these waters they became dangerous rivals of the railroads. Whereas in 1860 67 per cent of the merchandise that entered Paris came by rail and only 33 per cent by water, in 1908 the proportion had become 53 per cent by rail to 47 per cent by water; and today the traffic is about evenly divided between the two, with a slight tendency in favor of shipping by water. The character of the Parisian trade and the special conditions surrounding it account for the fact that the gain in tonnage for the water routes has not been greater.

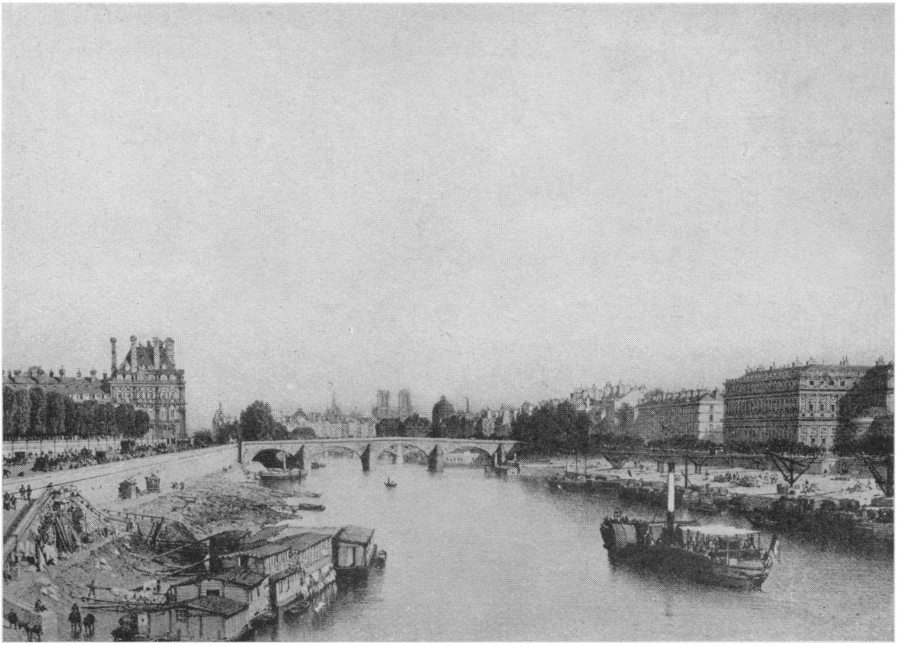

FIG. 7—The Seine in 1860 (from a photograph). Looking up stream: on the left the Tuileries (Pavillon de Flore); on the right wharves for the unloading of building stone.

CHARACTER OF THE TRAFFIC

The most curious single fact about the commerce of Paris is the disproportion between outgoing and incoming freight. Paris is not a great shipping port like Ruhrort on the Rhine or Duluth on Lake Superior but is essentially a port for incoming trade. The Seine brings to the city merchandise destined for consumption there; the situation is the same today as it has been in years past. In 1860 arrivals represented 76 per cent of all the traffic, in 1913, 73 per cent. But, although the greater part of the commerce of the port has always consisted of incoming shipments, the kind and nature of the shipments have completely changed in the course of the nineteenth century.

For hundreds of years the Seine, provisioning Paris, brought her principally foodstuffs: cereals and flour, salt, wine, fruit, vegetables, and eggs. Firewood was also brought from the forests of the upper basin by means of great rafts that made their way slowly down to the city. Fleets of small vessels gave the waters about Paris an air of extraordinary animation; many of these never left the port again, for the voyage back was long and expensive, and it was cheaper to demolish them. The banks of the river hummed with life; people from every section of Paris thronged to the market places by the waterside. As the nineteenth century advanced, and as the railroads developed, foodstuffs came no longer by water but by rail. The railroads were far better adapted to the transportation of light and perishable merchandise, the waterways more suited to shipments of heavy and bulky cargoes. The accompanying table (Table I) shows the incoming and outgoing freight for the year 1912.

TABLE I—COMMERCE OF THE PORT OF PARIS, 1912
(The figures indicate the percentage of the total commerce)

PRODUCT	IMPORTS	EXPORTS
Coal	33.0	3.5
Building Materials	42.6	67.0
Fertilizers and Refuse	7.9	18.0
Agricultural Products and Foodstuffs	7.2	3.0
Manufactured Products	3.1	3.0
Metallurgical Products	2.3	4.4
Wood	2.7	1.0
Machinery	1.2	0.1

Of the imports foodstuffs hold but a minor place (7.2 per cent.) and consist of wines from Algeria, Spain, and Bordeaux via Rouen; grain and flour of both domestic and foreign origin; salted meats, sugar, salt, groceries from overseas. It is surprising to see fertilizing materials and refuse arriving in a city (7.9 per cent of the incoming tonnage); but this is explained by the fact that these cargoes are the street sweepings, garbage, etc., of the city that are being sent from one part of the town to another or to the disposal and reduction works in the suburbs at Issy, St. Ouen, Vitry, Stains, and Alfortville.

Coal and building materials form the bulk of the traffic, more than three-quarters of the entire amount received at the port. In a growing city like Paris the erection of new buildings and the construction of various public works necessitate enormous quantities of heavy materials, stone, sand, gravel, cement, lime, plaster. These are brought by the river and unloaded at the dockyards along its course. Coal is also an essential commodity to a city which is an industrial center, a consumer of light, heat, and power. Two-thirds of all the coal used in Paris is brought from England and northern France by way of the Seine. In fine, Paris receives few foods, few manufactured articles, and even few raw materials.

Comparison of the inward and outward shipments of Paris gives surprising results. Wreckage from the demolition of buildings, framing from construction work (classed as building materials), and refuse make up the greater part of the city's outward-bound shipments, 85 per cent of the whole. Thus the river can well be said, in view of the character of its chief cargoes, to be the means of cleaning, enlarging, and beautifying Paris.

TABLE II—REGIONAL DISTRIBUTION OF THE COMMERCE OF THE PORT OF PARIS, 1912
(The figures indicate the percentage of the total commerce)

REGION	SHIPMENTS AT PARIS FOR:	ARRIVALS AT PARIS FROM:	TOTAL
Marne	1.4	6.8	4.1
Yonne, Saône, Rhone	2.0	1.5	1.75
Upper Seine, Loire, Allier	56.0	31.3	43.65
Lower Seine, Rouen, Havre	21.0	30.9	25.95
Oise, Northern Canals	6.0	23.3	14.65
Ourcq	13.6	6.2	9.9

As to the purely commercial traffic, the small amount handled should not surprise us. Paris is indeed a great industrial center, but its output does not consist of ponderous articles but rather of delicate things, objects of luxury, merchandise of great value but small volume, which would naturally be sent by rail. A few fast packets only carry down to Rouen and Havre articles from Paris bound overseas.

The port of Paris is therefore seen to be not so much a means of commercial relations with the outside world as an important factor in the life of the city, carrying its heavy domestic cargoes.

DIRECTION OF THE TRAFFIC: ORIGINS AND DESTINATIONS

Great changes have taken place in the direction of the traffic on the Seine in the course of the nineteenth century as well as in its character; in particular it shows a shift from the east to the north and the west.

As long as the Seine played so great a part in the provisioning of Paris the port's chief relations were with the upper basin. From up the river came grain and wood; from the Marne region came grain, flour, wine, iron, and wood; from the Yonne, wood, wine, bricks, and oil; from the Loing, coal; from the central region, fruits, wine, wood, metals, and tiles. From the lower Seine came some colonial shipments by way of Havre. The Oise region hardly counted at all.

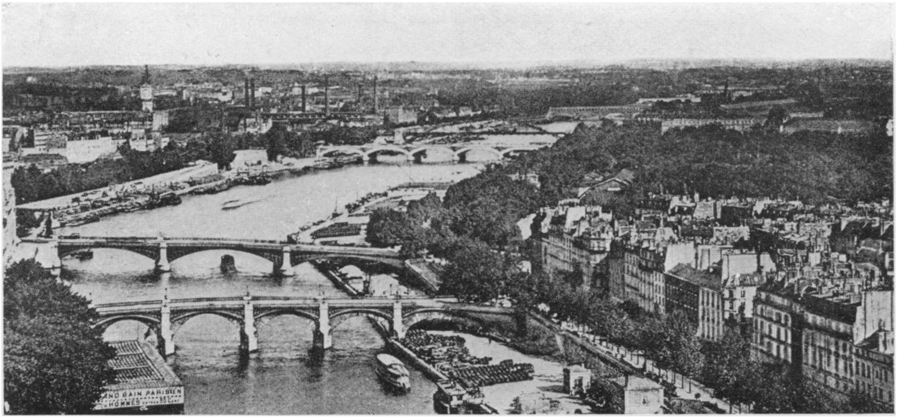

FIG. 8

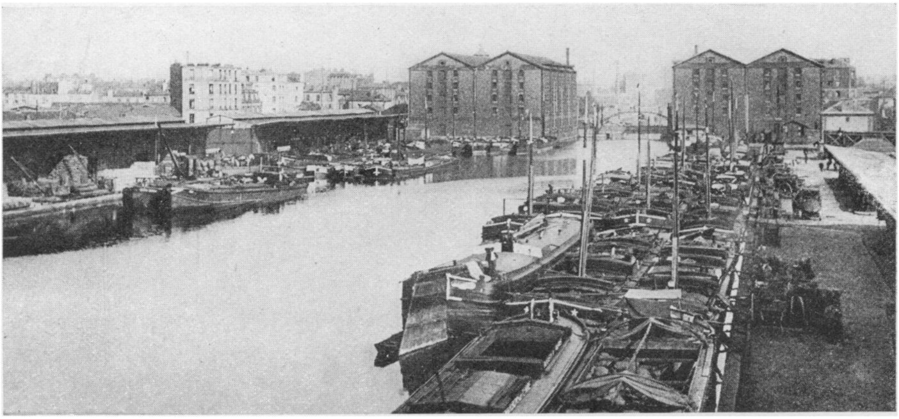

FIG. 9

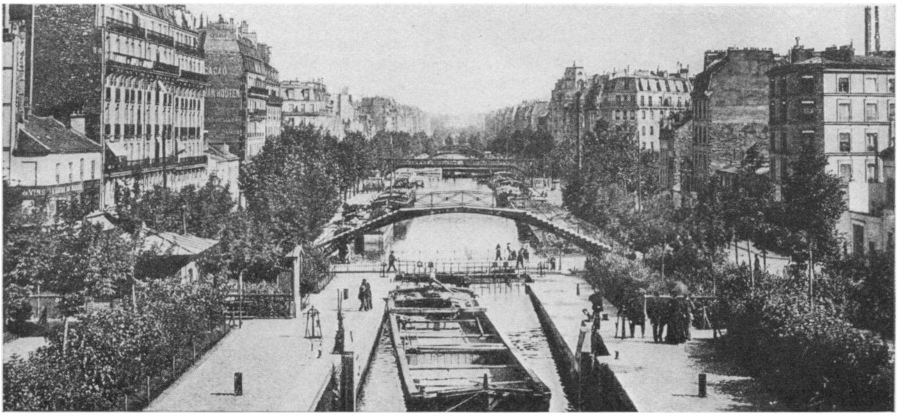

FIG. 10

FIG. 8—View of the Seine looking up stream from Notre Dame: on the right the quai St. Bernard (wine). Compare with Fig. 5.

FIG. 9—The Villette basin at the junction of the Ourcq, St. Denis, and St. Martin canals: a busy industrial section.

Fig. 10—On the canal St. Martin.

When the railroads had taken over the expediting of foodstuffs, and coal had become a necessity of everyday life, the course of traffic altered in favor of the lower Seine and its tributaries by which came the latter commodity. Table II shows the origin and destination of Paris consignments for the year 1912.

Table II calls for some comment. The commercial tributaries of the port of Paris should be divided into two groups: those upstream (Marne, Yonne, upper Seine), which supply 49 per cent of the total traffic (39.6 per cent of the arrivals and 59.4 per cent of the shipments); and those downstream (lower Seine and Oise), which are responsible for 40.6 per cent of the total traffic (54.2 per cent of the arrivals and 27 per cent of the shipments).[2]

The upstream tributaries of the port of Paris are the upper Seine, connected with the Loire by the canals of Loing and Briare; the Yonne, connected with the Saône by the canal of Bourgogne; and the Marne, connected with the Meuse, Moselle, and Rhine by the Rhine-Marne Canal. Their commercial importance does not correspond with their position on the statistical table, for more than 75 per cent of their traffic is limited to the part of the Seine lying between Paris and Montereau. Materials shipped along this section are chiefly building materials from the quarries sent down to Paris, and refuse from Paris carried up the river and dumped into the excavations made by the quarries. If to these are added similar cargoes on the Marne and Yonne, together with the refuse carried by all these rivers, the resulting figures give 90 per cent of all the heavy shipment. The remaining 10 per cent includes wood from Champagne, Bourgogne, and Lorraine, the products of the smelters and ore mines of Lorraine, German coal, wines and foodstuffs coming from the east and center—all consigned to Paris. Shipments out of Paris in this direction are so few as to be negligible.

The downstream tributaries of the port of Paris are of much greater importance. The lower Seine receives all export and import trade by way of Havre and Rouen. The upper waters of the Oise are in touch with the coal-mining regions of northern France and Belgium; the river empties into the Seine at Conflans, 72 kilometers below Paris. By these two waterways alone Paris received, in 1912, 2,259,423 tons of coal coming from the northern districts and 1,294,455 coming from England—a total of 3,553,878 tons. Coal constitutes three-fifths of all products received from downstream. The Oise is the special route for coal from the north. Besides the coal, the river carries only 150,000 tons of building materials, 20,000 tons of wood, 30,000 tons of castings and iron ore, and 70,000 tons of sugar and molasses.

The value of the lower Seine as a commercial trade route is greater still. First and foremost it is 3.2 meters deep—deeper than any other waterway of the basin—and can accommodate vessels of much greater draft; next it reaches ocean trade through Rouen and Havre. To Havre comes merchandise brought by ships from overseas, to Rouen heavier cargoes brought by the international coasting trade. Rouen, really the outport of Paris, is the point where transshipments of cargoes are made. It may be said that during the war Rouen saved France, for located far from the battle line it was able to send up to the factories of Paris the coal that France so badly needed. In 1917, 6,206,000 tons of freight, of which 4,568,000 were coal, went up the Seine from Rouen to Paris.

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[2] Not including the Ourcq, which brings to Paris building materials and wood from a small region to the north of Paris but whose upper end has no outlet. This stream is really part of the port of Paris.

CONCLUSION

The entire character of the port of Paris makes it a local port, chiefly used by and for the great city. The enormous proportion of the incoming freight is made necessary by the diverse requirements of the huge urban agglomeration that consumes large amounts of heavy merchandise but produces almost none.

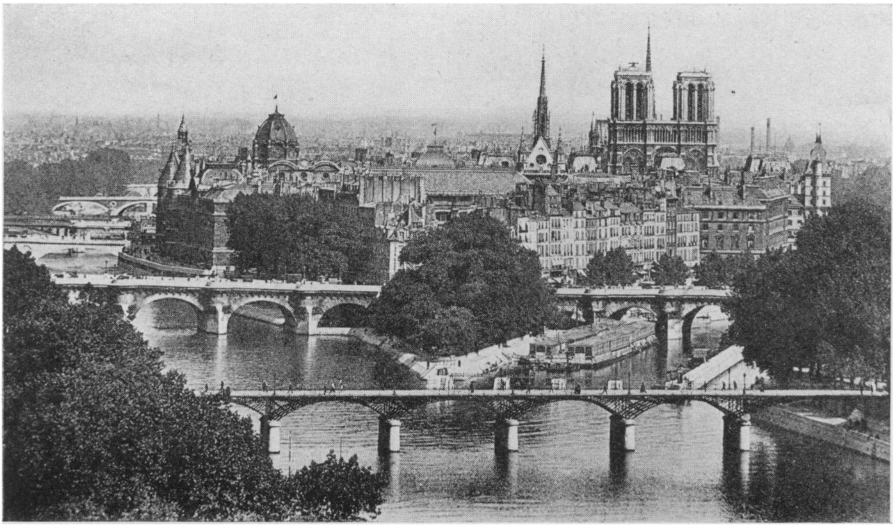

FIG. 11—Ile de la Cité, site of the first foundation of Paris.

But must this port always be confined to local uses? Can it not enlarge its commercial scope? Why should not Paris become a forwarding port? Why should not certain kinds of merchandise be shipped to Paris to be sent further on, rail freight transferred to the water, water freight to the railroads there? This idea of further developing its commercial usefulness is not a vain dream. Paris, purchasing many products in tremendous quantities, establishes a market for those products within her borders. She receives more than she herself requires and can reship and resell. There are already some goods that Paris re-exports, often to great distances; wine from the warehouses at Bercy, sugar, wood, coffee, charcoal, grain, some few articles made of iron, tools, and machinery. When the day comes when cold storage meats can be brought up from the maritime ports by river boats the meat markets of La Villette can widen their range of distribution.

This idea of making Paris a great transshipping port whose power and influence would be felt even abroad was talked of in earlier days. In 1832 a law authorized the erection of bonded warehouses in the interior of France. Merchandise was to be received there in bond, duty to be paid only if the goods were sold in France. If they were sent out of the country again they went out free. At Paris, on the banks of the St. Martin Canal the Marais Warehouse was built, where copper, coffee, cocoa, pepper, lead, precious woods, sugar, and gums were stored. The idea was principally to make Paris the port of shipment between the ocean and the Rhine countries.

Such a scheme, however, cannot be carried out by money alone. The enormous sums at the disposal of the Parisian trade are not enough in themselves to set up trade currents. Swift, powerful means of transportation are necessary to attract trade in transit. Merchandise now going to the Rhine countries has at its disposal means of transportation with which the Seine cannot compete, the Scheldt to Antwerp, the Rhine to Mannheim, Strasbourg, and even to Basel. In order to become an important port for transshipping and re-forwarding, Paris needs to become a deep-water port, where the railroads and river craft can be brought directly in contact with ocean-going ships. It should become the terminal for the one kind of shipment and the starting point of the other.

The dream of a port of Paris with an anchorage depth of 6 or 7 meters seems abandoned. But a more modest scheme for a depth of 4.5 meters would give considerable chance for hastening this desired improvement in commercial relations. Many things could be brought to Paris directly, both by coasting vessels and ocean-going craft—English coal, American grain, oil from the United States, wood and paper pulp from Scandinavia and Canada. The ships arriving laden at Paris would take on a return freight of chemical products from the east and of iron ores from the Lorraine basin. The profitable exchange between coal and iron cargoes that has made fortunes for shipping in other parts of the world, on the Great Lakes in the United States, on the German and Dutch Rhine, and the British coast for example, would be made possible for French shipping. Eastern France would have a new outlet to the sea through French territory; the influence of Paris would be felt throughout Central Europe, and France would be able to avail herself to the utmost of her splendid geographical position which makes her a passageway between maritime Europe and the interior regions.